

A. BACKGROUND

1. Name of proposed project:

183-H Solar Evaporation Basins Interim Closure/Post-Closure Plan

Information contained in this checklist pertains to only the 183-H Solar Evaporation Basins. Additional environmental information regarding the 100-H Area and the Hanford Site, in general, can be found in the following references:

U.S. Department of Energy, 1987. Final Environmental Impact Statement - Disposal of Hanford Defense High-Level, Transuranic and Tank Wastes, DOE/EIS-0113, Richland, Washington.

Energy Research and Development Administration, 1975. Final Environmental Impact Statement - Waste Management Operations, Hanford Reservation, ERDA-1538, Washington, D.C.

2. Name of applicants:

U.S. Department of Energy, Richland Operations (DOE-RL)
Westinghouse Hanford Company (WHC)

3. Address and phone number of applicants and contact persons:

U.S. Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

Westinghouse Hanford Company
P.O. Box 1970
Richland, Washington 99352

Contact Persons:

R. D. Izatt, Director
Environmental Restoration Division
(509) 376-1366

R. E. Lerch, Manager
Defense Waste Management Division
(509) 373-2044

4. Date checklist prepared:

March 14, 1988

5. Agency requesting the checklist:

State of Washington
Department of Ecology
Mail Stop PV-11
Olympia, Washington 98504

6. Proposed timing or schedule:

If the 183-H Solar Evaporation Basins are closed as a landfill with waste in place (See Section A.11.), emplacement of the landfill cover is expected to be completed in October 1992. The estimated date of final closure of the facility is October 1993. Post-closure monitoring of the landfill facility and the ground water under the facility will continue for up to thirty years after closure or as directed by the Washington State Department of Ecology (Ecology) [WAC 173-303-610(7)].

7. Do you have any plans for future additions, expansions, or further activity related to or connected with this proposal?

The 183-H Solar Evaporation Basins will be permanently closed pending the approval of the Interim Status Closure/Post-Closure Plan, which is being submitted to Ecology concurrently with this checklist.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

- The environmental impacts for the previous operation of the 183-H Basins are discussed in the Waste Management Operations Final Environmental Impact Statement.
- This SEPA checklist is being submitted concurrently with the Interim Status Closure/Post-Closure Plan for the 183-H Solar Evaporation Basins (DOE/RL 88-04), which describes the steps necessary for closure of the basins in accordance with the regulations promulgated by the Environmental Protection Agency (EPA) and Ecology as authorized by the Resource Conservation and Recovery Act of 1976 (RCRA) and the Hazardous and Solid Waste Amendments of 1984 (42 U.S. Code 6901-6987) (HSWA).
- An environmental evaluation accompanied by a NEPA checklist similar to this SEPA checklist may be prepared for DOE-RL/WHC internal documentation purposes.
- Following submittal of the Interim Status Closure/Post-Closure Plan, the 183-H Solar Evaporation Basins Final Status Closure/Post-Closure Plan will be prepared and submitted.

9. Do you know whether applications are pending for government approvals of other proposals directly affecting property covered by your proposal?

No applications are pending for government approvals of other proposals directly affecting the 183-H Basins.

10. List any government approvals or permits that will be needed for your proposal, if known.

Ecology is the only agency authorized to approve or permit final closure of the facility under requirements authorized by RCRA, HSWA, and Chapter 173-303-400 of the Washington Administrative Code. No other permits are required.

11. Give a brief, complete description of your proposal, including the proposed uses and the size of the project and site.

The 183-H Solar Evaporation Basins will be decontaminated in preparation for final facility closure. All liquid waste and waste sludge will be removed from the 183-H facility floors and walls to the fullest extent practicable, packaged within the confines of the basins, and shipped off-site. After removal of the packaged waste, the facility walls and floors will be tested for hazardous waste constituents. The floor of the facility will be sectioned and removed, and the underlying soil will be tested to define the extent and magnitude of the contamination plume in the vadose zone beneath the basins. Following soil sampling, the facility walls will be collapsed.

From the results of the soils testing program a determination will be made as to the practicability of removal of all contaminated soils from beneath the basins. As stipulated in 40 CFR 265.197(b), if "the owner or operator demonstrates that not all contaminated soils can be practicably removed or decontaminated as required...then the owner or operator must close the tank system and perform post-closure care in accordance with the closure and post-closure requirements that apply to landfills (Section 265.310)." The criteria of practicality that will guide the decision on the method of closure are based on the costs of exhuming, packaging, transporting, storing, and disposing of the contaminated soil. Once the volume of contaminated soil is known, an analysis will be conducted to determine the most expeditious and environmentally sound method of dealing with the wastes remaining in and leached from the 183-H Solar Evaporation Basins.

Based on the results of soil analyses, a decision will be made either to remove all contaminated materials from the site and conduct a "clean closure" of the 183-H facility, or to close the basins with waste material remaining in place. The latter option is considered most likely at this time. Closure of the basins will be performed in a manner that minimizes potential future impacts to human health and the environment.

Closure with waste in place will require the installation of a multilayer soil cover to minimize water intrusion to the underlying waste and soils. The cover, as designed for calculation purposes, will measure approximately 140 feet by 230 feet (actual dimensions will be dependent on the extent of the plume of contamination). The landfill cover will have a total thickness of about seven feet, encompassing four earthen layers (topsoil, sandy drainage layer, low permeability soil layer, and foundation soil layer) and two geosynthetic fabric layers. The final cover will be seeded with

grass species that grow well in the semi-arid climate at the Hanford Site. It is anticipated that the grasses will remove moisture from the soil through evapotranspiration and that any other moisture will be held in the uppermost soil layer due to the construction criteria of the final cover.

Following installation of the final cover, a chain-link fence surrounding the entire perimeter of the facility will be erected. The fence will remain locked at all times, except when personnel need access to conduct inspections or necessary repairs. The closed facility will meet all applicable closure requirements as set forth in federal and state regulations.

12. Give the location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

The 183-H Solar Evaporation Basins are located in the 100-H Area, which is in the northern part of the Hanford Site. Maps and plans are contained in the closure plan submitted with this checklist.

B. ENVIRONMENTAL ELEMENTS

1. Earth

- a. General description of the site: Flat
- b. What is the steepest slope on the site?

The approximate slope of the land around the 183-H Solar Evaporation Basins is less than two percent.

- c. What general types of soils are found on the site? If you know the classification of agricultural soils, specify them and note any prime farmland.

The general soil types found around the 183-H Area consist of eolian silt and fine sands (loess). No farming is permitted on the facility.

- d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

No.

- e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate the source of the fill.

If closure of the 183-H Basins is conducted with waste remaining in place, a final cover is required by regulations to be placed over the wastes remaining buried at the facility. An earthen and geotextile cover will serve as an impervious boundary layer between the wastes contained in the landfill and external moisture from the environment.

The uppermost layer of the final cover will consist of a three-foot deep revegetated soil (sandy silt to silt) underlain by a woven synthetic geotextile fabric. The top soil will provide storage for annual precipitation and support the establishment and growth of a perennial grass cover that will stabilize the surface of the cover and enhance soil-water removal.

Approximately 3,400 cubic yards of topsoil will be required. The most promising borrow site identified thus far is the McGee Ranch near the northwest corner of the Hanford Site; however, further investigation and soil analyses are planned to locate a nearer source of suitable materials.

Beneath the geotextile fabric will be a one-foot thick, sand, drainage layer requiring approximately 1,500 cubic yards of material. This highly permeable layer will be underlain by an impermeable geomembrane and a two-foot thick, low-permeability soil layer, composed of a mixture of 15% bentonite (about 400 cubic yards) and 85% native soil (about 2,500 cubic yards of material). Water will be trapped in the highly permeable drainage layer and laterally channelled to the edges of the cover, prevented from percolating deeper into the cover by the geomembrane and the clay layer. As yet no borrow site has been chosen for the earthen components of these two layers.

The lower-most component of the landfill cover is a one-foot thick foundation layer which will require about 1,200 cubic yards of sandy soil. No borrow site has been chosen yet for this soil.

- f. Could erosion occur as a result of clearing, construction, or use? If so, describe.

The erosion potential of this proposal is minimal. There are three possible sources of erosion damage in the area of the 183-H Solar Evaporation Basins: flooding, wind, and precipitation. The probability of serious damage to the area due to flooding or precipitation is low; the flow in the Hanford reach of the Columbia River is controlled by upstream dams, and the basins are not in the 100-year floodplain. The combination of semi-arid regional climate, high evapotranspiration rates, and minimal local slope in the vicinity of the proposed project make damage from all but rare high-intensity rain events unlikely. The potential for erosion from wind and precipitation will be largely offset by mulching practices and the establishment of a perennial grass cover over the closed facility.

- g. Approximately what percentage of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Closure of the basins with waste buried in place will include an earthen cover designed to minimize, if not eliminate, moisture movement to the waste (See Section B.1.e.). One hundred percent of the site will be capped by the designed cover. The site will be revegetated as part of the cover installation.

- h. Proposed measures to reduce or control erosion, or other impacts to the earth, if there are any?

If the 183-H Basins are clean-closed, the uppermost surface slope of the project site will be leveled to equal that of the surrounding area and revegetated. A straw mulch will be applied to assist in erosion control prior to the establishment of a grass cover. Closure of the basins with waste buried in place will require installation of a final cover, which will be revegetated. This will be sufficient to halt any minor erosional damage to the area.

2. Air

- a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed?

The heavy equipment used to construct the final cover and trucks transporting contaminated material from the facility will generate dust and gaseous (exhaust) emissions.

- b. Are there any off-site sources of emissions or odors that may affect your proposal? If so, generally describe.

No.

- c. Proposed measures to reduce or control emissions or other impacts to the air, if any?

In order to reduce the amount of dust generated during closure activities, water trucks will be available on-site that will periodically spray the affected area.

3. Water

a. Surface

- 1) Is there any surface water body in or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

At the closest point, the 183-H Solar Evaporation Basins are approximately 550 feet from the Columbia River, the nearest natural watercourse.

- 2) Will the project require any work over, in, or adjacent to (within 200 feet of) the described waters?

No.

- 3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of the fill.

None.

- 4) Will the proposal require surface water withdrawals or diversions?

No.

- 5) Does the proposal lie within a 100-year floodplain?

No.

- 6) Does the proposal involve any discharges of waste materials to surface waters?

No.

b. Ground

- 1) Will ground water be withdrawn, or will water be discharged to ground water?

The ground water monitoring program will require the withdrawal of ground water samples for analytical purposes.

90117151003

- 2) Describe waste materials that will be discharged into the ground from septic waste tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals...; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

Does not apply.

c. Water Run-off (including storm water)

- 1) Describe the source of run-off (including storm water) and methods of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other wastes? If so, describe.

Run-off collection and disposal methods will be necessary only in the event of a severe rain fall or heavy snow melt. The landfill cover will be equipped with drainage pipes extending from the highly permeable drainage layer to drainage ditches at the edges of the cover. The outflow of run-off water will be to the surface, oriented toward the Columbia River. It is anticipated that the final facility cover, vegetation, and the relatively flat topography of the area will preclude excessive run-off from this facility. Any run-off will be absorbed by the surrounding soil, and no other form of run-off collection system is currently under consideration. The run-off that might occur will not flow into any other wastes.

- 2) Could waste materials enter ground or surface waters? If so, generally describe.

There is presently a plume of contamination in the soil column beneath the 183-H Basins. If significant quantities of water were to reach the plume, there is a possibility that waste materials would enter the ground water. However, the final facility cover will be constructed so as to minimize, if not eliminate, the intrusion to the soil column of water from severe rain events and sudden snow melt-off.

- 3) Proposed measures to reduce or control surface, ground, and run-off water impacts, if any:

All liquid wastes and waste sludge will be removed from the 183-H Basins to the fullest extent practicable. Waste sludge will be commingled with sufficient quantities of absorbent material to ensure that no free liquid remains in the waste drums, and liquid wastes will be loaded and solidified within the confines of the basin. All waste removal operations will be conducted within the confines of the basins to prevent accidental releases to the environment. At no time will waste materials be discharged directly to the ground.

Leaching of buried waste material after closure of the basins will be deterred by the installation of a multilayered barrier designed to preclude the migration of surface water to underlying contaminated soils.

4. Plants

a. Check the types of vegetation found on site.

- ☐ deciduous tree
- ☐ evergreen tree
- ☐ shrubs
- ☐ grass
- ☐ pasture
- ☐ crop or grain
- ☐ wet soil plants
- ☐ water plants
- ☐ other types of vegetation

There is no vegetation on the 183-H site. Additional information on the Hanford Site environment can be found in the final environmental impact statements referenced at the beginning of this document.

b. What kind and amount of vegetation will be removed or altered?

A small vegetated area around the basins may be affected by closure activities. All areas denuded of vegetation as a result of this project will be revegetated appropriately.

c. List threatened or endangered species known to be on or near the site.

No threatened or endangered plant species exist on or in the immediate vicinity of the 183-H Basin site. Additional information on the Hanford Site environment can be found in the final environmental impact statements referenced at the beginning of this document.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Native grasses will be used to revegetate the cover of the 183-H Basins.

2017 51005

5. Animals

- a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

birds: hawk, heron, eagle, songbirds, other

mammals: deer, bear, elk, beaver, other

fish: bass, salmon, trout, herring, shellfish, other

No birds or animals are known to exist on the 183-H site.

Additional information on the Hanford Site environment can be found in the final environmental impact statements referenced at the beginning of this document.

- b. List any threatened or endangered species known to be on or near the site.

No threatened or endangered species are known to exist on the facility site. Additional information on the Hanford Site environment can be found in the final environmental impact statements referenced at the beginning of this document.

- c. Is the site part of a migration route? If so, explain.

No. Additional information on the Hanford Site environment can be found in the final environmental impact statements referenced at the beginning of this document.

- d. Proposed measures to preserve or enhance wildlife, if any:

Does not apply to the 183-H Basins facility. [However, a Bald Eagle Management Plan is being devised in accordance with the State of Washington Bald Eagle Protection Rules (WAC 232-12-292). The plan will have some impact on the 100-H Area, as it is an important site for the bald eagle, but not specifically on the 183-H project site.]

6. Energy and Natural Resources

- a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

The completed project will require the use of portable electric generators for powering ground water monitoring well pumps during inspection and sampling.

- b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

No.

- c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

Does not apply.

7. Environmental Health

- a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

During the decontamination phase of the project, decontamination and monitoring equipment may be exposed to chemically hazardous and radioactively contaminated materials in the sludge and liquids still in the basins. Purge water produced during ground water monitoring may contain hazardous and radioactive wastes leached from the 183-H Basins. Closure of the basins will be performed in a manner that minimizes potential future impacts to human health and the environment. Personnel will receive radioactive waste and hazardous work training and be cognizant of applicable health and safety measures.

- 1) Describe special emergency services that might be required.

Does not apply.

- 2) Proposed measures to reduce or control environmental health hazards, if any:

During decontamination proceedings, all equipment decontamination solutions and emergency shower effluent will be retained within the basins for collection and packaging. Sludge waste will be commingled with sufficient quantities of absorbent material to ensure that no free liquid remains in the waste drums, and liquid waste will be loaded and solidified within the confines of the basin. All waste removal operations will be conducted within the confines of the basins to prevent accidental releases to the environment. At no time will waste materials be discharged directly to the ground.

Wastes, decontamination solutions, clean-up debris, and ground water monitoring well purge water will be collected, packaged, and transferred to a 90-day temporary storage area to the east of the basins until they can be transported to a Treatment/Storage/Disposal facility. The temporary storage area is roped off to warn personnel to stay clear.

Precautions will be taken to prevent exposure of personnel and the environment to any hazardous or radioactively contaminated materials. There will be a barrier control during the decontamination phase in the form of step-off pads at all entrance/exit points to the facility. All personnel leaving the facility will be monitored for contamination. Protective clothing and equipment used during the clean-up procedures will be decontaminated.

b. Noise

- 1) What type of noise exists in the area which may affect your project (for example: traffic, equipment, operation, etc.)?

None.

- 2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, etc.)? Indicate what hours noise would come from the site.

Construction activities will temporarily increase noise levels during normal day-shift hours. The completed project will have no effect on noise levels.

- 3) Proposed measures to reduce or control noise impacts, if any:

None.

8. Land and Shoreline Use

- a. What is the current use of the site and adjacent properties?

The 183-H Solar Evaporation Basins are part of the Hanford Site owned by the U. S. Government and co-operated by the DOE-RL and WHC. The basins are utilized for waste reduction via the natural process of liquid evaporation. No hazardous waste shipments have been received since November 1985.

- b. Has the site been used for agriculture? If so, describe.

No portion of the Hanford Site (including the 183-H Basins) has been used for agricultural purposes since World War II.

- c. Describe any structures on the site.

The 183-H Solar Evaporation Basins are composed of four contiguous concrete holding basins. The basins are above-ground structures, each comprised of a deep subsidence basin and a shallow flocculator basin. The subsidence basins are a nominal 53 ft-6 in. wide and 95 ft in length, with a depth varying from 16 ft-6 in. at the north end to 15 ft-6 in. at the south end.

The flocculator basins, at the north end of and within the boundaries of the subsidence basins, are 45 ft-6 in. wide, 33 ft in length, and 9 ft-6 in. deep.

Approximately 45 feet to the south of and parallel to the basins are the 183-H Clear Water Reservoirs (clearwells). These subsurface structures are a total of 858 ft long, east to west, (parallel to the 183-H basins) and 184 ft wide, north to south. The clearwells were used as a reservoir for treated river water intake to the 105-H Reactor, which was deactivated in April 1965. Since that time, the clearwells have been used as a collection site for clean waste materials.

- d. Will any structures be demolished? If so, what?

During the closure process, the 183-H Basins will be demolished. If the basins are clean-closed, clean rubble will be placed in a section of the adjacent clearwells, which will then be filled to ground level with clean soil.

- e. What is the current zoning classification of the site?

The Hanford Site is zoned by Benton County as an Unclassified Use (U) district.

- f. What is the current comprehensive plan designation of the site?

Does not apply.

- g. If applicable, what is the current master shoreline program designation of the site?

Does not apply.

- h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

No.

- i. Approximately how many people would reside or work in the completed project?

None.

- j. Approximately how many people would the completed project replace?

None.

- k. Proposed measures to avoid or reduce displacement impacts, if any:

Does not apply.

1. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

Does not apply.

9. Housing

- a. Approximately how many units would be provided, if any? Indicate whether high-, middle-, or low-income housing.

None.

- b. Approximately how many units, if any, would be eliminated? Indicate whether high-, middle-, or low-income housing.

None.

- c. Proposed measures to reduce or control housing impacts, if any:

Does not apply.

10. Aesthetics

- a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

Closure of the basins with waste in place will require the installation of an earthen cover. The designed cover will have a maximum height of 9.1 feet at the crest.

- b. What views in the immediate vicinity would be altered or obstructed?

None.

- c. Proposed measures to reduce or control aesthetic impacts, if any:

Does not apply.

11. Light and Glare

- a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

None.

- b. Could light or glare from the finished project be a safety hazard or interfere with views?

Does not apply.

- c. What existing off-site sources of light or glare may affect your proposal?

None.

- d. Proposed measures to reduce or control light and glare impacts, if any:

Does not apply.

12. Recreation

- a. What designated and informal recreational opportunities are in the immediate vicinity?

None.

- b. Would the proposed project displace any existing recreational uses? If so, describe.

Does not apply.

- c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any?

Does not apply.

13. Historic and Cultural Preservation

- a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

There are no known archaeological, historical, or native American religious sites at the facility. Additional information on the Hanford Site environment can be found in the environmental impact statements referenced at the beginning of this document.

- b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

Does not apply.

- c. Proposed measures to reduce or control impacts, if any:

If the facility is clean-closed, contaminated soils will be excavated and removed from the site. Prior to excavation proceedings, the project site will be surveyed for archaeological materials. Significant archaeological finds may result in schedule delays until a plan to mitigate excavation impacts can be devised and implemented.

14. Transportation

- a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

None.

- b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

The facility is not publicly accessible and, therefore, is not served by public transit.

- c. How many parking spaces would the completed project have? How many would the project eliminate?

None.

- d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

No.

- e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

No.

- f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

None.

- g. Proposed measures to reduce or control transportation impacts, if any:

Does not apply.

15. Public Services

- a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

No.

- b. Proposed measures to reduce or control direct impacts on public services, if any:

Does not apply.

16. Utilities

- a. List utilities currently available at the site (electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, etc.):

The only utility currently available at the site is fresh water.

- b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

A portable air supply for pneumatically operated equipment and a portable electrical generator will be necessary for closure activities. After final closure of the facility, the only utility necessary for operation will be portable electric generators for powering ground water monitoring well pumps during inspection and sampling.

General construction activities are outlined in Section A.11.

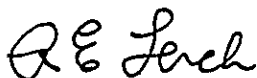
- c. SIGNATURES

The above answers are true and complete to the best of my knowledge. We understand that the lead agency is relying on them to make its decision.



R. D. Izatt, Director
Environmental Restoration Division
U.S. Department of Energy
Richland Operations Office

3/14/88
Date



R. E. Lerch, Manager
Defense Waste Management Division
Westinghouse Hanford Company

3/14/88
Date

**THIS PAGE INTENTIONALLY
LEFT BLANK**